

# Partial FCC RF Test Report

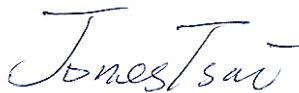
APPLICANT : Getac Technology Corporation.  
EQUIPMENT : WLAN module  
BRAND NAME : Intel  
MODEL NAME : 7260NGW  
FCC ID : QYL7260NGW  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : (DTS) Digital Transmission System

This is a partial report which is included conducted output power and AC conducted emission test items. The product was received on Sep. 17, 2013 and testing was completed on Nov. 07, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



## SPORTON INTERNATIONAL INC.

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FCC ID : QYL7260NGW

Page Number : 1 of 24

Report Issued Date : Nov. 28, 2013

Report Version : Rev. 01



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### REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR391728C	Rev. 01	Initial issue of report	Nov. 28, 2013



### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.00 dB at 4.526 MHz
3.2	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-

# 1 General Description

## 1.1 Applicant

**Getac Technology Corporation.**

5F., Building A, No. 209, Sec. 1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

## 1.2 Manufacturer

**Getac Technology (Kunshan) Co., LTD.**

No. 269, No. 2 Avenue, Kunshan Comprehensive Free Trade Zone, Jiangsu Province, P.R.C

## 1.3 Feature of Equipment Under Test

Product Feature	
<b>Equipment</b>	WLAN module
<b>Brand Name</b>	Intel
<b>Model Name</b>	7260NGW
<b>FCC ID</b>	QYL7260NGW
<b>Installed into Notebook</b>	Brand Name: Getac Model Name: B300 Marketing Name: B300
<b>EUT supports Radios application</b>	WLAN 11a/b/g/n (HT20/HT40) WLAN 11ac (VHT20/ VHT40/VHT80) Bluetooth 3.0 + EDR / Bluetooth 4.0 - LE
<b>EUT Stage</b>	Production Unit

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
<b>Tx/Rx Channel Frequency Range</b>	802.11b/g/n : 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5745~5825MHz.
<b>Maximum Output Power to antenna</b>	<p><b>&lt;2412 MHz ~ 2462 MHz &gt;</b></p> <p><b>&lt;Ant. 1&gt;</b> 802.11b : 17.80 dBm (0.0603 W) 802.11g : 20.69 dBm (0.1172 W) 802.11n HT20 : 20.73 dBm (0.1183 W) 802.11n HT40 : 20.62 dBm (0.1153 W)</p> <p><b>&lt;Ant. 2&gt;</b> 802.11b : 16.45 dBm (0.0442 W) 802.11g : 19.95 dBm (0.0989 W) 802.11n HT20 : 19.93 dBm (0.0984 W) 802.11n HT40 : 18.59 dBm (0.0723 W)</p> <p><b>&lt;MIMO Ant. 1+2&gt;</b> 802.11n HT20 : 21.79 dBm (0.1510 W) 802.11n HT40 : 21.12 dBm (0.1294 W)</p> <p><b>&lt;5745 MHz ~ 5825 MHz &gt;</b></p> <p><b>&lt;Ant. 1&gt;</b> 802.11a : 20.81 dBm (0.1205 W) 802.11n HT20 : 20.55 dBm (0.1135 W) 802.11n HT40 : 19.18 dBm (0.0828 W) 802.11n VHT20 : 20.55 dBm (0.1135 W) 802.11n VHT40 : 19.59 dBm (0.0910 W) 802.11n VHT80 : 22.68 dBm (0.1854 W)</p> <p><b>&lt;Ant. 2&gt;</b> 802.11a : 20.46 dBm (0.1112 W) 802.11n HT20 : 20.38 dBm (0.1091 W) 802.11n HT40 : 19.57 dBm (0.0906 W) 802.11n VHT20 : 20.28 dBm (0.1067 W) 802.11n VHT40 : 19.18 dBm (0.0828 W) 802.11n VHT80 : 22.61 dBm (0.1824 W)</p> <p><b>&lt;MIMO Ant. 1+2&gt;</b> 802.11n HT20 : 22.18 dBm (0.1652 W) 802.11n HT40 : 21.92 dBm (0.1556 W) 802.11n VHT20 : 22.30 dBm (0.1698 W) 802.11n VHT40 : 21.81 dBm (0.1517 W) 802.11n VHT80 : 22.61 dBm (0.1824 W)</p>
<b>Antenna Type</b>	<p><b>&lt;Ant 1&gt;</b> 802.11b/g/n : PIFA Antenna type with gain 2.75 dBi 802.11a/n/ac : PIFA Antenna type with gain -2.43 dBi</p> <p><b>&lt;Ant 2&gt;</b> 802.11b/g/n : PIFA Antenna type with gain 2.54 dBi 802.11a/n/ac : PIFA Antenna type with gain 3.19 dBi</p>

Product Specification subjective to this standard			
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		
Antenna Function for Transmitter		Ant. 1	Ant. 2
	802.11 b	V	V
	802.11 g	V	V
	802.11 a	V	V
	802.11 n/ac SISO	V	V
	802.11 n/ac MIMO	V	V

### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

### 1.6 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978	
Test Site No.	Sporton Site No..	
	TH02-HY	CO05-HY

**Note:** The test site complies with ANSI C63.4 2003 requirement.



## 1.7 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02.
- ♦ ANSI C63.4-2003

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz).

### 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	157	5785
	151	5755	159	5795
	153	5765	161	5805
	155	5775	165	5825

## 2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and shown in the following tables.

<Ant. 1>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	17.80	17.76	17.77	17.68

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.69	20.68	20.68	20.67	20.67	20.65	20.65	20.61

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.73	20.72	20.71	20.71	20.72	20.71	20.70	20.71

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.62	20.61	20.60	20.60	20.59	20.58	20.61	20.60

802.11a								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.81	20.73	20.78	20.80	20.77	20.73	20.78	20.76

5GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.55	20.45	20.44	20.46	20.51	20.49	20.54	20.53

5GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.18	19.12	19.15	19.13	19.12	18.81	19.00	19.11



5GHz 802.11 ac VHT20									
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8
Peak Power (dBm)	20.55	20.41	20.49	20.36	20.34	20.18	20.54	20.46	20.51

5GHz 802.11 ac VHT40										
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
Peak Power (dBm)	19.59	19.30	19.45	19.57	19.25	19.58	19.51	19.45	19.48	19.55

5GHz 802.11 ac VHT80										
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
Peak Power (dBm)	22.68	22.67	22.66	22.65	22.66	22.66	22.65	22.65	22.63	22.64

<Ant. 2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	16.45	16.44	16.41	16.40

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	19.95	19.89	19.89	19.88	19.93	19.94	19.93	19.93

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.93	19.91	19.92	19.92	19.90	19.92	19.91	19.92

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	18.59	18.53	18.51	18.58	18.55	18.58	18.51	18.55

802.11a								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.46	20.43	20.41	20.42	20.45	20.41	20.45	20.44

5GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.38	20.36	20.34	20.37	20.36	20.33	20.37	20.36



5GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.57	19.54	19.42	19.36	19.39	19.46	19.52	19.53

5GHz 802.11 ac VHT20									
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8
Peak Power (dBm)	20.28	20.24	20.25	20.26	20.26	20.25	20.24	20.26	20.25

5GHz 802.11 ac VHT40										
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
Peak Power (dBm)	19.18	19.04	19.04	18.75	18.74	18.92	19.01	19.05	19.04	19.01

5GHz 802.11 ac VHT80										
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
Peak Power (dBm)	22.61	22.52	22.52	22.60	22.57	22.51	22.54	22.55	22.57	22.52

MIMO <Ant. 1+2>

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.79	21.78	21.71	21.66	21.66	21.54	21.75	21.46

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.12	21.11	21.11	21.11	21.08	21.09	21.09	21.10

5GHz 802.11n HT20								
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	22.18	22.14	22.16	21.95	22.07	21.86	22.14	22.09

5GHz 802.11n HT40								
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.92	21.70	21.91	21.48	21.49	21.39	21.87	21.86

5GHz 802.11ac VHT20									
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8
Peak Power (dBm)	22.30	22.21	22.22	22.22	22.26	21.94	22.28	22.21	22.27

5GHz 802.11ac VHT40										
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
Peak Power (dBm)	21.81	21.67	21.64	21.45	21.53	21.61	21.55	21.58	21.59	21.57

5GHz 802.11ac VHT80										
Data Rate (MHz)	MSC 0	MCS 1	MCS2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
Peak Power (dBm)	22.61	21.55	21.98	22.43	22.03	21.40	22.14	22.51	22.53	22.46

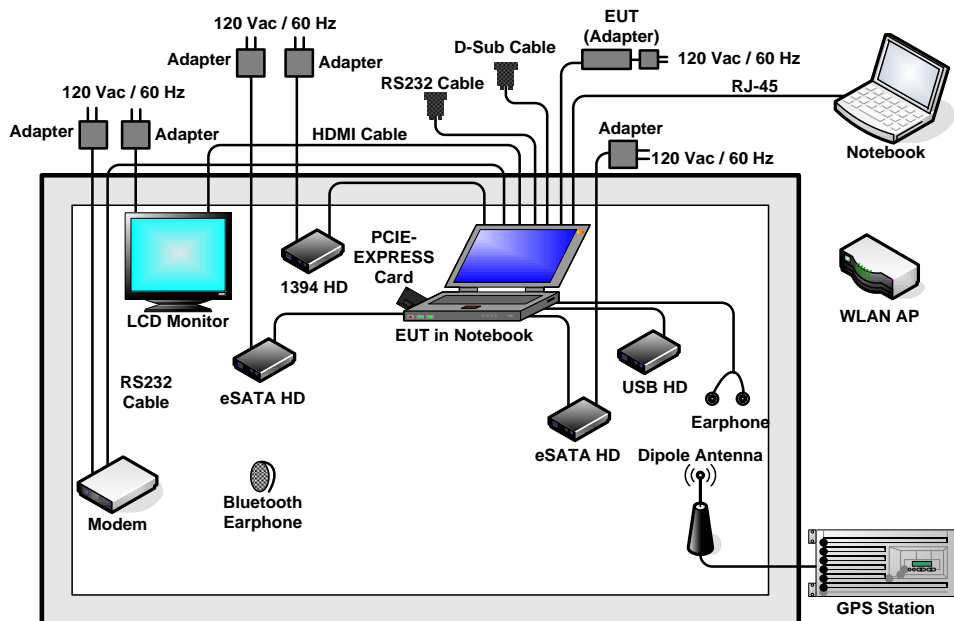
Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

### 2.3 Test Mode

Test Cases	
AC Conducted Emission	Mode 1 : WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC
<p><b>Remark:</b> TC stands for Test Configuration, and consists of SD Card, USB HD, Earphone, Adapter, HDMI Cable, RJ-45 Link, D-sub Cable(Load), RS232 Cable(Load), eSATA HD, 1394 HD, Modem, DVD-ROM, and PCIE-EXPRESS Card.</p>	

### 2.4 Connection Diagram of Test System

<AC Conducted Emission Mode>



## 2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
5.	Notebook	DELL	Latitude E6320	FCC DoC	Unshielded, 3.0m	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Earphone	Ergotech	ET-E200	N/A	Unshielded, 1.8 m	N/A
7.	USB HD	WD	WDBAAR3200AB K-PESN	FCC DoC	Unshielded, 0.5 m	N/A
8.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
9.	eSATA HD	FReeCOM	Qiattro 1TB AK	FCC DoC	Shielded, 0.8 m	Unshielded, 1.8 m
10.	eSATA HD	WD	WD6400H1Q-00	FCC DoC	Shielded, 0.8 m	Unshielded, 1.8 m
11.	PCIE-EXPRESS Card	BELKIN	FD7010	PD5LMWB800RA	N/A	N/A
12.	1394 HD	WD	WD-6400H1CS-00	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
13.	Modem	ACEEX	DM1414	IFAXDM1414	Shielded, 1.5 m	Unshielded, 1.8 m

### 3 Test Result

#### 3.1 AC Conducted Emission Measurement

##### 3.1.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

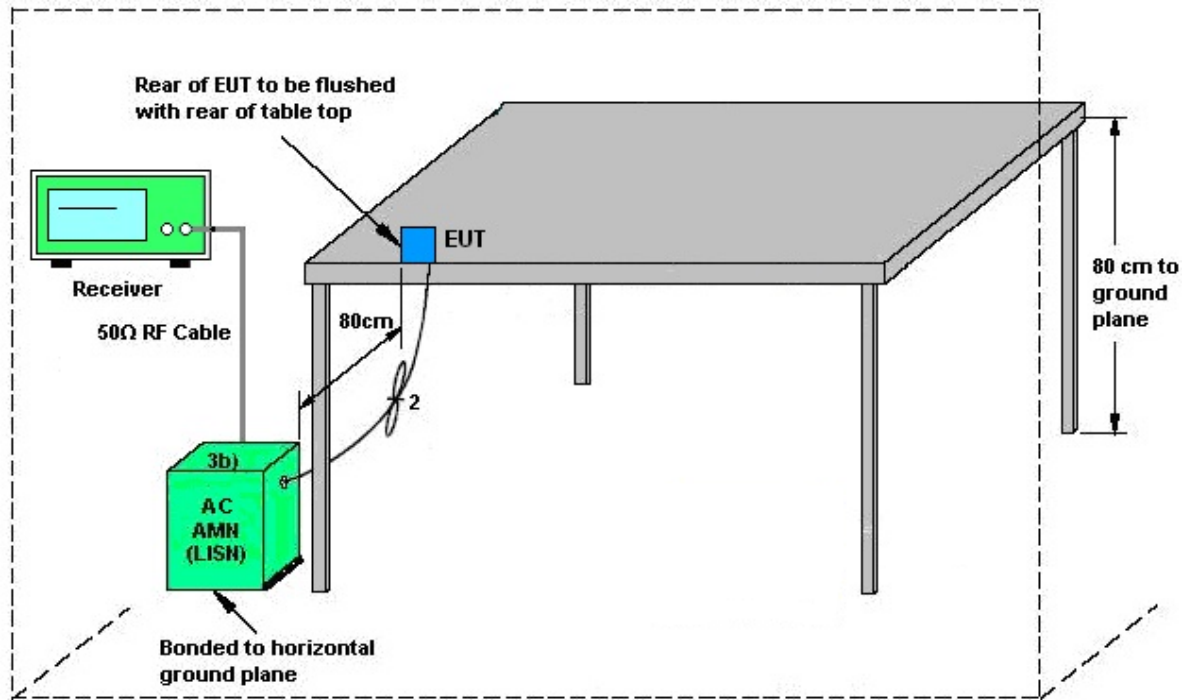
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.1.4 Test Setup

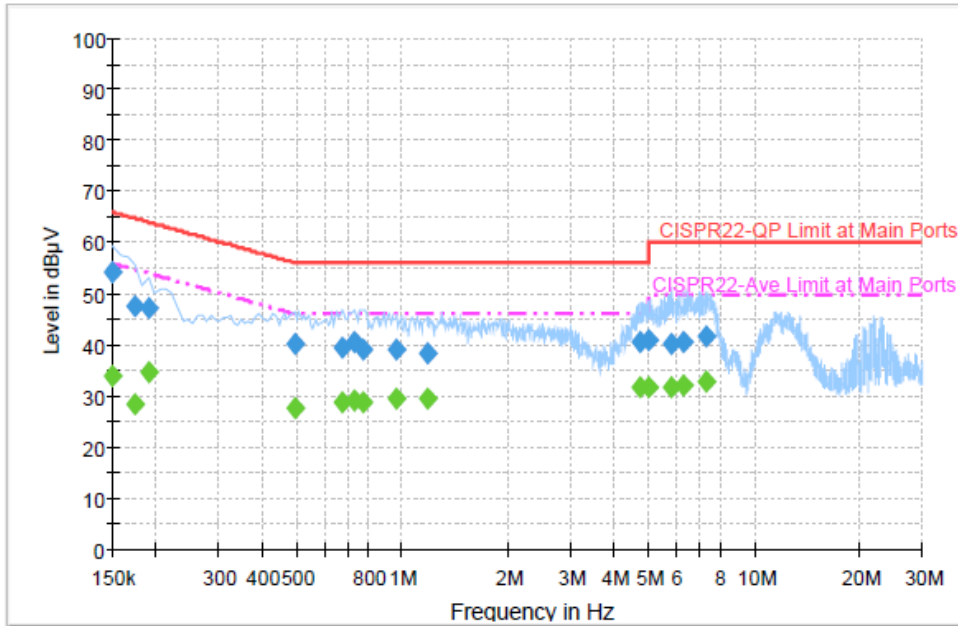


AMN = Artificial mains network (LISH)  
 AE = Associated equipment  
 EUT = Equipment under test  
 ISN = Impedance stabilization network



3.1.5 Test Result of AC Conducted Emission

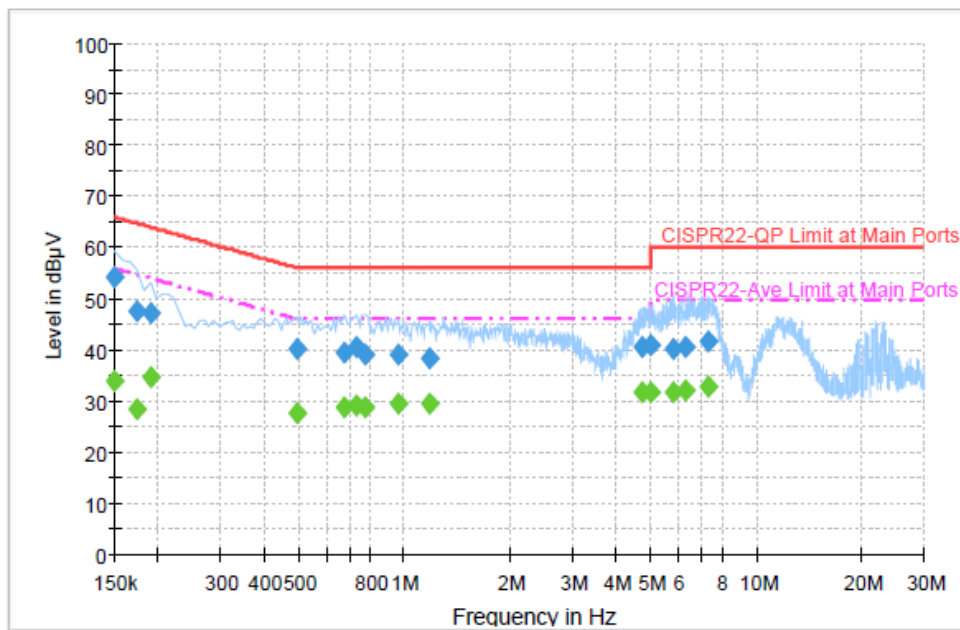
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.1	Off	L1	19.4	11.9	66.0
0.174000	47.7	Off	L1	19.4	17.1	64.8
0.190000	47.2	Off	L1	19.4	16.8	64.0
0.494000	40.2	Off	L1	19.3	15.9	56.1
0.678000	39.7	Off	L1	19.5	16.3	56.0
0.734000	40.6	Off	L1	19.4	15.4	56.0
0.774000	39.1	Off	L1	19.5	16.9	56.0
0.966000	39.1	Off	L1	19.4	16.9	56.0
1.174000	38.4	Off	L1	19.5	17.6	56.0
4.726000	40.6	Off	L1	19.6	15.4	56.0
4.990000	41.0	Off	L1	19.7	15.0	56.0
5.846000	40.3	Off	L1	19.7	19.7	60.0
6.318000	40.8	Off	L1	19.6	19.2	60.0
7.278000	41.7	Off	L1	19.6	18.3	60.0

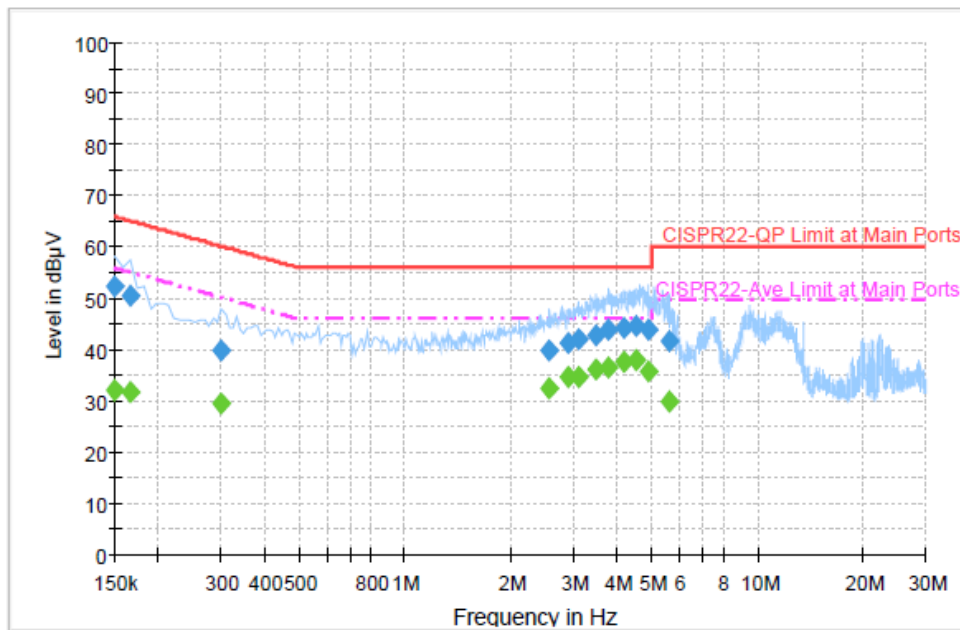
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.0	Off	L1	19.4	22.0	56.0
0.174000	28.5	Off	L1	19.4	26.3	54.8
0.190000	34.6	Off	L1	19.4	19.4	54.0
0.494000	27.8	Off	L1	19.3	18.3	46.1
0.678000	28.8	Off	L1	19.5	17.2	46.0
0.734000	29.2	Off	L1	19.4	16.8	46.0
0.774000	28.9	Off	L1	19.5	17.1	46.0
0.966000	29.5	Off	L1	19.4	16.5	46.0
1.174000	29.6	Off	L1	19.5	16.4	46.0
4.726000	31.7	Off	L1	19.6	14.3	46.0
4.990000	31.6	Off	L1	19.7	14.4	46.0
5.846000	31.9	Off	L1	19.7	18.1	50.0
6.318000	32.2	Off	L1	19.6	17.8	50.0
7.278000	32.8	Off	L1	19.6	17.2	50.0

<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~22°C
<b>Test Engineer :</b>	Kai-Chun Chu	<b>Relative Humidity :</b>	45~47%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Neutral
<b>Function Type :</b>	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		

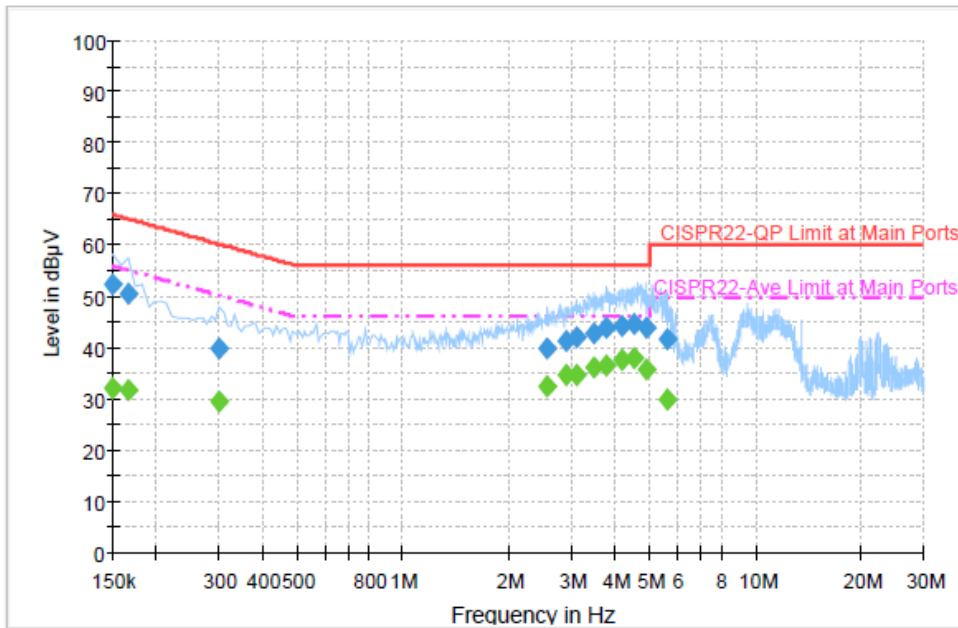


**Final Result : Quasi-Peak**

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.5	Off	N	19.4	13.5	66.0
0.166000	50.4	Off	N	19.4	14.8	65.2
0.302000	39.7	Off	N	19.4	20.5	60.2
2.574000	39.8	Off	N	19.6	16.2	56.0
2.910000	41.3	Off	N	19.6	14.7	56.0
3.094000	42.0	Off	N	19.6	14.0	56.0
3.486000	42.9	Off	N	19.6	13.1	56.0
3.782000	43.8	Off	N	19.6	12.2	56.0
4.182000	44.2	Off	N	19.6	11.8	56.0
4.526000	44.6	Off	N	19.6	11.4	56.0
4.902000	43.9	Off	N	19.7	12.1	56.0
5.630000	41.7	Off	N	19.7	18.3	60.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	31.9	Off	N	19.4	24.1	56.0
0.166000	31.7	Off	N	19.4	23.5	55.2
0.302000	29.6	Off	N	19.4	20.6	50.2
2.574000	32.5	Off	N	19.6	13.5	46.0
2.910000	34.8	Off	N	19.6	11.2	46.0
3.094000	34.8	Off	N	19.6	11.2	46.0
3.486000	36.0	Off	N	19.6	10.0	46.0
3.782000	36.6	Off	N	19.6	9.4	46.0
4.182000	37.6	Off	N	19.6	8.4	46.0
4.526000	38.0	Off	N	19.6	8.0	46.0
4.902000	35.9	Off	N	19.7	10.1	46.0
5.630000	30.0	Off	N	19.7	20.0	50.0

### 3.2 Antenna Requirements

#### 3.2.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the Antenna exceeds 6 dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

#### 3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.2.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$  if the  $k$ th antenna is being fed by spatial stream  $j$ , or zero if it is not;

$G_k$  is the gain in dBi of the  $k$ th antenna.



The EUT supports CDD mode.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

	Ant 1	Ant 2	for	for	Limit	Limit
	(dBi)	(dBi)	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
<b>2.4 GHz</b>	2.75	2.54	2.65	5.66	0.00	0.00
<b>5 GHz</b>	-2.43	3.19	1.23	4.24	0.00	0.00

$$\text{Power Limit Reduction} = DG(\text{Power}) - 6\text{dBi}, (\text{min} = 0)$$

$$\text{PSD Limit Reduction} = DG(\text{PSD}) - 6\text{dBi}, (\text{min} = 0)$$



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	Nov. 07, 2013	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	Nov. 07, 2013	Aug. 16, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 13, 2012	Sep. 12, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Sep. 12, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Sep. 12, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Sep. 12, 2013	N/A	Conduction (CO05-HY)



## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.26
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